

REMARKS

The Applicants appreciate the thoroughness with which the subject application has been examined. By this amendment, changes have been made in the claims to overcome the Examiner's rejections and objections and more concisely claim and describe the present invention. Claims 1, 11 and 15 have been amended. New claim 20 has been added. The Examiner's allowance of all pending claims 1-20 is earnestly solicited.

MATTERS RELATED TO THE SPECIFICATION

The Applicants have identified a typographical informality in the specification and proposes to correct it as indicated above in the marked-up specification paragraph.

MATTERS RELATED TO THE CLAIMS

Within the first claim set (i.e., claims 1-10), the Examiner has rejected claims 1-10 under Section 102(e) as anticipated by Dunn (6,463,570), and claims 1-4 and 7 under Section 102(e) as anticipated by Lovett (6,664,799).

To further define the invention over the cited art, the Applicants have amended claim 1 as set forth above in the marked-up version of the claim. In particular, the Applicants claim, "A method for identifying an integrated circuit device having a frequency marker device formed thereon." The Applicants determine an oscillating frequency of the frequency marker device, and "associat[e] the oscillating frequency with the integrated circuit device to identify the integrated circuit device according to the determined oscillating frequency."

Dunn discloses a technique for verifying a process step in the fabrication of an integrated circuit by, "determining deviations in the ring oscillator frequency from a preselected nominal value [to] delimit regions of the wafer for which the process step is marginal." To perform the verification, "A period of the ring oscillator . . . is measured and compared with a preselected specification." The ring oscillator has "a structure adapted for sensitizing the ring oscillator to a predetermined process step." Dunn discloses an integrated circuit screening technique based on deviations in the ring oscillator frequency from a nominal value. "If the ring oscillator

[frequency] measurement is within preselected screening limits” “If the die under test falls outside the screening limits”

Dunn does not disclose identifying an integrated circuit device by “associating the oscillating frequency with the integrated circuit device, to identify the integrated circuit device according to the determined oscillating frequency.” As Dunn is understood, he does not disclose use of the oscillator frequency, but instead, “deviations in the ring oscillator frequency from a preselected nominal value.”

Lovett discloses a method, “for characterizing an integrated circuit device based on device switching speed.” He notes that the “manufacturing process for integrated circuits is imprecise,” and “these variations impact the speed at which a particular die operates.” “Once the frequency . . . of a particular die . . . is known, the dies can be sorted according to those characteristics.”

Lovett does not disclose, “A method for identifying an integrated circuit device” and “associating the oscillating frequency with the integrated circuit device to identify the integrated circuit device according to the determined oscillating frequency.” Lovett “test[s] and sort[s] semiconductor dies based on performance characteristics.” He does not, “identify the integrated circuit device according to the determined oscillating frequency.”

The Applicants believe that an obviousness rejection under Section 103 would not be appropriate as the combination of Dunn and Lovett (assuming arguendo that they can be combined) lacks any suggestion or motivation related to the Applicant’s invention of “identifying an integrated circuit device according to the determined oscillating frequency.”

It is respectfully submitted that each of the dependent claims 2-10 depending from amended claim 1, each includes one or more elements that further distinguish the invention from the art of record.

Examiner Quinto has rejected claims 11-14 under Section 102(e) as anticipated by Dunn (6,463,570), and claims 11 and 12 under Section 102(e) as anticipated by Lovett (6,664,799).

To more particularly define and distinguish the invention over the cited art, the Applicants have amended independent claim 11 by adding a phrase to step (i) such that the step

now reads, "maintaining the association of the step (f) after the semiconductor dice are singulated to identify the integrated circuit device according to the determined oscillating frequency."

There is no disclosure or suggestion in Dunn, Lovett or the combination of Dunn and Lovett related to, "maintaining the association of the step (f) after the semiconductor dice are singulated to identify the integrated circuit device according to the determined oscillating frequency."

As to dependent claims 12-14 dependent from amended independent claim 11, each includes one or more elements that further distinguish the invention from the art of record.

Claims 15-19 stand rejected under Section 102(e) as anticipated by Dunn.

Independent claim 15 claims, "An integrated circuit die comprising a frequency identifier that can be determined to correlate the die with a wafer."

Dunn discloses a technique for verifying a process step in the fabrication of an integrated circuit and Lovett discloses a method, "for characterizing an integrated circuit device based on device switching speed."

There is no disclosure or suggestion in Dunn, Lovett or the combination of Dunn and Lovett related "a frequency identifier that can be determined to correlate the die with a wafer."

As to dependent claims 16-19 dependent from amended independent claim 15, each includes one or more elements that further distinguish the invention from the art of record.

New claim 20 sets forth a method for identifying an integrated circuit device, including "associating [a determined] . . . oscillating frequency with the integrated circuit device to identify a failed integrated circuit device according to the determined oscillating frequency."

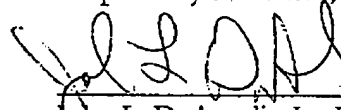
Neither Dunn nor Lovett suggest or disclose identifying "a failed integrated circuit device according to the determined oscillating frequency."

The Applicants have attempted to comply with all of the points raised in the Office Action and it is believed that the remaining claims in the application, i.e., claims 1-20, are now in condition for allowance. In view of the foregoing amendments and discussion, it is requested that the Examiner's claim rejections have been overcome. It is respectfully requested that the

Examiner reconsider these rejections and objections and issue a Notice of Allowance for all the claims pending in the application.

If a telephone conference will assist in clarifying or expediting this Amendment or the claim changes made herein, Examiner Quinto is invited to contact the undersigned at the telephone number below.

Respectfully submitted,



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